1. $R = 10 \log \frac{300\ I_0}{I_0}$

$= 10 \log 300$

24.8 dB

2. $R = 10 \log X$

$70 = 10 \log X$

$7 = \log X$

$10^7 = X$

10^7 times as loud as the threshold of hearing

#8

$pH = -\log[H^+]$

$= -\log[5 \times 10^{-2}]$

$5 \in -2$

$pH = 1.3$

#11

$\log(8 \times 10^{19}) = 11.8 + 1.5M$

$5.4 = M$